

U.S. Patent Application Serial No. 10/539,303
Reply to Office Action dated January 16, 2007

Remarks:

Applicants have read and considered the Office Action dated January 16, 2007 and the references cited therein. Claims 1, 6, 7 and 9-11 have been amended and new claim 12 has been added. Claims 1, 6-7 and 9-12 are currently pending. Claims 2-5 and 8 have been cancelled without prejudice or disclaimer. Reconsideration and reexamination are hereby requested.

In the Action, the drawings were objected to as the Action stated that the sensor means of claim 8 must be shown or the features cancelled from the claims. Although Applicants assert that the sensor of claim 8 is shown, claim 8 has been cancelled without prejudice or disclaimer. Applicants assert that the objection to the drawings has been overcome.

Claim 8 was rejected under 35 U.S.C. § 112, first paragraph. Although Applicants do not acquiesce to the rejection, claim 8 has been cancelled without prejudice or disclaimer. Applicants assert that the rejection under 35 U.S.C. § 112, first paragraph, should be withdrawn.

Claims 8 and 10 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. As discussed above, claim 8 has been cancelled without prejudice or disclaimer. Moreover, claim 10 has been amended to eliminate the use of the term "fast" from the claim. Applicants assert the indefiniteness rejection is overcome and requests that the rejection be withdrawn.

Claims 1-2, 4 and 9-11 were rejected under 35 U.S.C. § 102(b) as being anticipated by Rieth et al. Claim 1 has been amended and recites elements from claims 3 and 5, among other changes. Applicants assert that as claims 3 and 5 were not anticipated by Rieth et al., claim 1 now distinguishes for at least the same reasons that former claims 3 and 5 were not anticipated by Rieth et al., as well as others.

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Claims 1 and 11 were rejected under 35 U.S.C. § 102(b) as being anticipated by Shirai et al. As discussed above, claim 1 has been amended and includes features of claims 2-5. Applicants assert that claims 2-5 were not anticipated by Shirai et al. and patentably distinguish over Shirai. For at least those reasons, Applicants assert that claim 1 patentably distinguishes over Shirai et al. and that claim 11 depending from claim 1 also patentably distinguishes over Shirai et al.

Claims 3 and 6-8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Rieth et al. Moreover, claims 2-6 and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Shirai et al. in view of Rieth et al. Applicants respectfully traverse the rejections. Claim 1 has been amended and now recites an electromechanical screw actuator assembly comprising an electric motor with a stator and a rotor. Claim 1 further recites a screw mechanism including a rotatable nut and a central screw translatable along a given axis and a planetary gear reduction system disposed between the rotor and the screw mechanism for driving the screw mechanism, the gear reduction system including a plurality of satellite gears. Claim 1 further recites that the rotor includes a radial flange having a plurality of axially protruding pins rotatably supporting the satellite gears, wherein the rotor has outer peripheral toothings made of metallic material and formed by a peripheral edge of the radial flange. Applicants assert that this is neither shown nor suggested by Rieth or Shirai or any combination thereof.

Applicants assert that the present invention provides advantages over Shirai and Rieth. The present invention provides a simple and reliable actuator that is not possible with the prior art or any combination thereof. Although the Office Action contends that Rieth discloses satellites that are rotatably carried by the integral sun gear portion of the rotor, careful review of Rieth shows that this is not accurate. As shown in Figure 1 and at column 6, lines 5-30, Rieth discloses that the rotor has a sun gear, referred to as sun wheel 30, with which the satellite gears, shown as elements 31 and 32, are supported and mesh. These elements in turn mesh with the pinion cage 34, which is a planetary carrier.

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This structure teaches away from the present invention wherein the rotor and more particularly the radial flange of the rotor, is the planetary carrier as recited in claim 1. Applicants further assert that Shirai fails to overcome the shortcomings of Rieth and fails to teach or suggest such a structure. The direct support provides performance and reliability that is not possible with the prior art. Shirai is a much more complicated brake device that requires two motors with different structure interacting and supporting the elements recited in corresponding elements to claim 1. In the present invention, the single rotor and flange acts as a planetary carrier and as the encoder along the sensor to detect pulses and indicate the position of the rotor. Moreover, the present invention provides the rotor's radial flange structure that also provides for stopping the actuator through a locking member.

Although the Office Action asserts that one skilled in the art would have modified the toothed rotor of Shirai as taught by Rieth to allow more compact locking, Applicants assert that this uses hindsight. Moreover, Applicants assert that the combination still does not render the claims obvious. Shirai's rotor member 148 is not toothed. The use of tothing is not an obvious modification as tothing requires substantial modification of thicknesses and strength that may adversely affect other performance to adapt to interacting with complementary gears or teeth of other elements. Such modifications also require changes to the housing and completely different geometry for a sensor.

Moreover, it would not be obvious to modify the arrangement of Rieth to mount planetary gears in order to reduce the number of components. Both of the cited references are substantially more complicated with a much larger number of parts including two motors providing drive in Shirai. Therefore, one of ordinary skill in the art looking to provide a more reliable and simpler device would not have looked to either of the two references for modifying the other. Applicants assert that claim 1 provides an actuator that is neither shown nor suggested by the prior art. Moreover, Applicants assert that the claims depending therefrom are also allowable for at least the same reasons.

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New claim 12 recites that planetary gears are directly supported on the radial flange of the rotor. This is neither shown nor suggested by either Shirai or Rieth et al. and is not possible as neither reference teaches or suggests modification of the other to arrive at the actuator recited in claim 12. Applicants assert that claim 12 is allowable for at least these reasons as well as those discussed above.

A speedy and favorable action in the form of a Notice of Allowance is hereby solicited. If the Examiner feels that a telephone interview may be helpful in this matter, please contact Applicant's representative at (612) 336-4728.



Respectfully submitted,

MERCHANT & GOULD P.C.

Dated: _____

7/16/07

By: _____

Gregory A. Sebald
Reg. No. 33,280
GAS/km